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Fall 2015

## EDCI 5240

Thomas Wright  
*University of New Orleans*

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# Course Syllabus

*EDCI5240: Secondary Mathematics Methods (3 cr.)*

*Dr. Thomas Wright*

*Fall 2015 – Monday 5:00 – 7:45 pm – Bicentennial Education Center Room 305-0*

## Office Hours and Location

Office Phone: 504-280-6524

Email: [tdwright@uno.edu](mailto:tdwright@uno.edu) or

[\\_\\_\\_\\_\\_](#)

Contact Info of 3 classmates:

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

Regular Online Communication: Moodle & email

Office: ED 342-T

Office Hours: Mondays & Thursdays 3 – 5pm, by appointment in-person or on Second Life

When emailing, it is best to use your UNO account as non-UNO accounts may be picked up as “junk mail.” Your subject line should contain: EDCI 5240 – Fall 2015.

In the event of a hurricane evacuation, we will as soon as possible move to an online course and continue until further notice. Class messages will be posted through Moodle / Google Drive and classes will likely be taught through Second Life. My username is Snelgrove Nightfire. You would do well to establish an online presence there and familiarize yourself with the UNO campus in Second Life. See <http://www.virtualcampus.uno.edu>.

## Course Description

In this course we will work on mathematical topics appropriate for your conceptual understanding, as well as focus on the teaching of secondary school mathematics for grades 6-12. It is designed to facilitate disciplined reflective inquiry into the education process through the interaction of theory and practice. Throughout the course you will reflect on your learning as a tool for thinking about how learning happens.

The philosophy of this course is that people, of all ages and many learning styles, learn best in an environment where they explore topics and come to their own understanding. This environment includes working cooperatively with others from diverse backgrounds in heterogeneous settings and is consistent with the College of Education and Human Development's mission to prepare professionals who practice in culturally diverse settings.

Students enrolled in courses with field experiences will be required to enter both the location and number of field experience hours completed to meet the requirements of this course into Live Text (e-portfolio). This requirement must be completed to earn any credit aligned with field experience assignments. Candidates will also be required to document completion of a required number of field experience hours at various points in the program of study. The only documentation that will satisfy this requirement will be data in Live Text portfolio. Thus, it is critical that candidates record all field experience information.

This course includes preparation for a candidate assessment that is a requirement for program progression. Students planning to student teach next semester must complete a program-specific assessment by the end of this semester and receive an acceptable score on the assessment before being cleared to student teach. Instructions for Tier III/Level 2 assessments for each program/certification area will be provided at the Student Teaching Orientation meeting this semester. Uploading this information is the responsibility of the student and should occur throughout the semester with all required information entered one week after the last filed experience of the semester.

Because this is a course for aspiring teachers, the following terminology will be used throughout the syllabus and course assignments. “Teacher candidates” will be the term used to refer to students enrolled in the UNO course, EDCI 5240. “K-12 students” or “students” will be used to refer to the students in field-based settings who will be observed and taught by teacher candidates to meet the course requirements for EDCI 5240.

As a result of successfully completing the course, students will have demonstrated and documented major standards and themes for teaching and learning as summarized below.

## *The COEHD Conceptual Framework*

Our conceptual framework, the theory-practice-research interaction model, permeates the programs preparing candidates for professional roles in school settings. As candidates progress through their professional studies, they are introduced to formal theories and concepts that are validated by research, which along with their personally held beliefs and assumptions, inform their professional practice. The roles and responsibilities set out the broad domains for developing competence of teacher candidates viewed through the lens of the theory-practice-research interaction model. As candidates engage in various clinical and field experiences included in their program of study, observation and study of professional practices inform and refine the educational theories and concepts they construct. Our goal is to have our candidates internalize the theory-practice-research interaction model, as they develop into reflective practitioners constantly reassessing the educational theories, beliefs, and assumptions they embrace.



## *Required / Recommended Textbooks / Learning Resources*

1. Teaching Secondary Mathematics by Posamentier, Smith Stapelman
2. Bringing the NCTM Standards to Life for Middle Grades (Germain-McCarthy)
3. Course Supplement (provided by the professor)
4. 1, 2-inch 3-ringed binder: Class Notes and Final Portfolio
5. **The Purdue Owl website (<http://owl.english.purdue.edu/owl/resource/560/01/>) can answer many of your questions regarding APA format.**

Selected readings from *Mathematics Teacher*, *Mathematics Teaching in the Middle School*, *Journal for Research in Mathematics Education*, and other professional journals will be distributed in class.

# Course Alignment to Standards

## Unit Standards

Refer to the Following Roles:

1	Design and deliver instruction	4	Use inquiry to inform practice
2	Manage time, tasks, and environments	5	Collaborate to support group practice
3	Advocate for children, services, and supports	6	Improve classroom and system practice

## State Standards

Refer to Louisiana Components of Effective Teaching (LCET).

I A	The teacher plans effectively for instruction
II A	The teacher maintains an environment conducive to learning
II B	The teacher maximizes amount of time available for instruction
II C	The teacher manages learner behavior to provide productive learning opportunities
III A	The teacher delivers instruction effectively
III B	The teacher presents appropriate content
III C	The teacher provides opportunities for student involvement in the learning process
IIID	The teacher demonstrates ability to assess and facilitate student academic growth
IV A	The experienced teacher plans for professional self-development
IV B	The new teacher plans for professional self-development
V A	The teacher takes an active role in building-level decision making
V B	The teacher creates partnerships with parents/caregivers and colleagues

## Objectives Alignment with Unit and State Standards

In addition to the identified goals and objectives, this course addresses UNO Teacher Roles and Louisiana State COMPASS Standards.

## COEHD Requirements / Standards

COEHD Conceptual Framework - "Theory-Practice-Research-Interaction"

Goal: Preparing Reflective Practitioners

### Roles and Responsibilities of Professionals in Teacher Education

1. Effective teachers **manage classroom contexts and environments**.
  - They establish a culture for learning.
  - They create an environment of respect and rapport.
2. Effective teachers **design curriculum and instruction**.
  - They understand and use curriculum and instruction.
  - They communicate effectively.
3. Effective teachers **deliver instruction and assess learning**.
  - They engage students in active learning.
  - They integrate disciplines into instruction.
  - They use assessment in instruction.
  - They embed diversity in decision-making.
4. Effective teachers **participate in professional responsibilities**.
  - They advocate for children, in terms of services and supports.

- They collaborate to improve professional practice.
- They reflect on teaching and learning

## *SPA Requirements / Standards*

**DEVELOPMENT, LEARNING, AND MOTIVATION.** 1.1 Development, Learning, and Motivation – Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students' development, acquisition of knowledge, and motivation.

**CURRICULUM.** 2.3 Mathematics – Candidates know, understand, and use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability. In doing so they consistently engage problem-solving, reading and proof, communication, connections, and representation.

**INSTRUCTION.** 3.1 Integrating and applying knowledge for instruction – Candidates plan and implement instruction based on knowledge of students, learning theory, connections across the curriculum, curricular goals, and community;

3.2 Adaptation to diverse students – Candidates understand how middle and secondary students differ in their development and approaches to learning, and create instructional opportunities that are adapted to diverse students;

3.3 Development of critical thinking and problem solving – Candidates understand and use a variety of teaching strategies that encourage elementary students' development of critical thinking and problem solving.

3.4 Active engagement in learning – Candidates use their knowledge and understanding of individual and group motivation and behavior among students at the 4-8 and 6-12 level to foster active engagement in learning, self-motivation, and positive social interaction and to create supportive learning environments;

3.5 Communication to foster collaboration – Candidates use their knowledge and understand the effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the middle and secondary classroom.

**ASSESSMENT.** 4.0 Assessment for instruction – Candidates know, understand, and use formal and informal assessment strategies to plan, evaluate, and strengthen instruction that will promote continuous intellectual, social, emotional, and physical development of each middle and secondary student.

**PROFESSIONALISM.** 5.1 Professional growth, reflection, and evaluation – Candidates are aware of and reflect on their practice in light of research on teaching, professional ethics, and resources available for professional learning; they continually evaluate the effects of their professional decisions and actions on students, families, and other professionals in the learning community and actively seek out opportunities to grow professionally.

5.2 Collaboration with families, colleagues, and community agencies – Candidates know the importance of establishing and maintaining a positive collaborative relationship with families, school colleagues, and agencies in the larger community to promote the intellectual, social, emotional, physical growth, and well-being of children.

## *Diversity of Learning*

The content of this course and its associated activities are designed to help meet the needs and concerns of diverse learners. The assessment and instructional approaches are appropriate for students regardless of sex, age, religion, ethnicity, sexual orientation, or nation of origin.

## *Learning Opportunities*

- **ATTENDANCE POLICY.** Attendance in class is mandatory. Copying someone else's notes cannot duplicate discussions or idea sharing. There will be a 3-point deduction for arriving to class after 5:00 p.m. Call a classmate for missed information. 5 points are deducted for each absence not excused by a physician. **After three (3) absences, you must drop the course.**

## Statement on Student Conduct

- **PARTICIPATION AND RESPONSIBILITY.** Participation is more than talking in class. Participation means allowing oneself to become engaged in the learning process. The following are examples of good class participation:
  - Contributing interesting, insightful comments
  - Presenting good examples of what is being discussed
  - Raising good questions
  - Listening and responding appropriately to others' comments
  - Being sensitive to your level of participation, making attempts to increase or decrease it if necessary
  - Arriving on-time for class.
- **TEACHING.** Students are expected to take part in hands-on teaching experiences as they arise either in their own classes or in a local school. Assignments may include, but are not limited to: tutoring individual students, working with groups, leading problem sessions, grading assignments, preparing and presenting a whole class lesson.
- **CELL PHONES.** Please turn off cell phones during class (this is not the same as on vibrate). If you have an unusual circumstance, please inform me ahead of time. Please do not leave them on the desks/tables.

## Criteria for Grading

It is expected that you submit all of the required course assignments in order to attain an understanding of teaching of mathematics to students. All assignments are expected on the designated due date and are to be completed in a professional, appropriate manner. All assignments should be typed.

On all written work, I expect you to demonstrate correct use of the English language with regard to grammar, punctuation, and spelling—I *do* grade on technical writing skills as well as content. Please proofread your work before submitting it. If you have weaknesses in the area of grammar, punctuation, or spelling, find someone who will proofread your work for you before you turn it in. Please adhere to **APA formatting** for assignments submitted to the College of Education and Human Development.

It is also expected that all work you hand in will be your own work and done specifically for this course only. Do not use articles or other work from another course. Unless stated otherwise, all assignments are individual projects. I do not mind if you discuss your work with others in the class but you are to complete each assignment individually. Any indication that you are handing in someone else's work or work from another class will result in immediate failure in this class. Grades are assigned according to the table of grades and scores given in the syllabus.

**Policy on Late Assignments.** I expect that assignments will be turned in by the announced due dates and times. I will accept assignments after the due date, but your grade will decrease by 10% of the allocated points for each day the assignment is late.

**Policy on Computer Accidents.** Please make sure you save your work frequently and keep backup copies of your files when using a word processor. **Computer accidents, while very unfortunate, are not an acceptable excuse to avoid penalties for late work.**

Each typed assignment to be graded must have the following footer on the bottom of each page:

You Name

EDCI 5240

assignment name and page number

## Course Objectives and Standards Alignment

STUDENTS WILL BE ABLE TO:	UNO Roles	LCET	ACEI	NAEYC
1. Demonstrate strategies for teaching and enhancing acquisition of concepts and computational skills using a variety of materials and methods.	1, 2	1, 2(a, b, c) 3(a, b, c), Vb	2.3 3(.1- .5)	1, 4a-d, 5
2. Develop and apply alternative assessments to analyze a child's understanding of a topic.	1 - 6	1, 2(a, b, c) 3(a, b, c, d), Vb	2. 3 3(.1 - .5) 4, 5(.2, .3)	1, 3, 4(a-d), 5
3. Develop and teach reform-based lesson plans to children based on the Louisiana Component of Effective Teaching (LCET).	1 - 6	1, II(a, b, c) III(a, b, c, d), Vb	2. 3 3(.1 - .5) 4, 5(.2, .3)	1, 3, 4(a-d), 5
4. Identify and explore sophisticated strategies adaptable to any population of students.	4	3b, c	2.3 3.2	1, 4(b-d), 5
5. Develop understandings of classroom management and motivational techniques for multicultural classroom settings through field experiences in the elementary schools.	2, 4, 5	2(a, b, c) 3c	2.3 3(.1 - .5) 5.3	1, 4(a-d), 5
6. Discuss the scope and sequence for teaching 6- 12 mathematics as reflected in the Louisiana Frameworks and the NCTM Standards.	5	1, 2b, 3a, b, Vb	2.3 5.2, .3	1, 4(b-d), 5

## UNO Evidence Sets

- planning effective instruction
- maintaining an environment conducive to learning
- maximizing time available for learning
- supporting learner behavior to provide productive learning opportunities
- delivering effective instruction
- presenting appropriate content
- providing opportunities for student involvement in the learning process
- demonstrating ability to assess and facilitate student academic growth
- creating partnerships with parents/caregivers and colleagues
- using inquiry and reflection to improve practice
- engaging in advocacy efforts
- planning for professional development
- taking an active role in building-level decision making

## Additional Information Related to Course Requirements

- Statement on Academic Integrity: Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity and being an accessory to acts of academic dishonesty. Refer to the UNO Student Code of Conduct for further information. The Code is available online at <http://www.studentaffairs.uno.edu>.
- Accommodations for Students with Disabilities: It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities should contact the Office of Disability Services as well as their instructors to discuss their individual needs for accommodations. For information, please go to <http://www.ods.uno.edu>.

## *Course Assignments*

### **1. Initial Journal Assignment**

Write about your strengths and weaknesses and address each of the following questions: (1) How have math courses you have taken in the mathematics department impacted your understanding, feelings or perception of mathematics? (2) What is your teaching philosophy? (3) What is your mathematical teaching philosophy? (4) Why will you succeed in this course? (5) What personal and professional qualities do you have that will enhance your learning throughout the semester? (6) What do you bring to the community of learners who have chosen this course? (7) What expectations do you have of the community of learners who chose this course? (8) Rate your level of math content knowledge anxiety on a scale of zero (none) to 10 (high). (9) Do similarly for math teaching anxiety. (10) Explain why you chose that score. This journal will be the first entry in your portfolio. To receive full credit, answer all of the questions.

### **2. Reflections on readings and class**

You will be reflecting on your growth throughout the course. While this assignment is designed as an assessment of your learning, it also gives you the opportunity to reflect upon the experiences you have in this course as well as other experiences connected with the course. Write at least a 4-paged (12-point, double-spaced) reflection on your learning. Each entry must be dated and numbered. Each reflection should be stapled by itself (i.e., Reflection 1 should have its own staple; Reflection 2 should have its own staple, etc.) Holistic scoring scale: Check Plus: complete and reflects all entries; Check minus: Some work missing as indicated by my written feedback.

You should reflect on:

- All of the course readings-outline important points;
- Your reactions to our class, looking at yourself as a learner of mathematics and reflecting upon the processes you use to learn;
- Your learning of mathematics, your learning about learning and teaching, your confusion, new ideas, questions, etc.;
- How you think you would use ideas and activities presented in class in your own classroom;
- Any modifications you would make to strategies suggested by others;
- Resources that you find particularly helpful during the course.

### **3. Research Journal Analysis**

Write a critical analysis of an academic journal article from the research journal of your choice. The article should be recent (published within the last 3 years). In your analysis, give a summary of the main point(s) of the article including, but not limited to: The purpose of the study, research questions, significance of the study, implications for policy and practice, the methodology used, the methods for data collection, research findings, and implications for future research. If you choose to give a thumbnail sketch of the review of related literature, this should be very brief. Your reflection should be typed using APA formatting, including 4-5 double-spaced pages, an APA-formatted title page, and an APA-formatted reference page. See <http://owl.english.purdue.edu/owl/resource/560/01/> for formatting guidance.

### **4. Academic Article Prezi & Handout**

For this presentation, you will select an article from the academic journal of your choice on the implementation of Common Core State Standards, teacher evaluations (using Compass or other teacher evaluation rubric), or the PARCC (or non-PARCC) assessments. The presentation should include hand-outs; your presentation should utilize the online presentation software Prezi ([www.prezi.com](http://www.prezi.com)). There is no paper to write. Instead, (1) you will copy the link to your presentation into our spreadsheet on Google Drive, and (2) you will upload a one-page hand-out which you will upload to Google Drive.



## 5. Micro Teaching

Half of this course will consist of teaching by the students. There will be two sets of presentations. You will present two 50-minute classes working from a lesson in algebra, geometry, advanced math, trigonometry, or calculus.

The lesson will be based on a high school text selected by the student. We may discuss your plan before the class. The lesson plan should include:

1. A description of exactly the book and page from which the lesson is taken.
2. Specify roughly who the lesson is intended for (e.g. 9th grade regular algebra in 2nd semester.)
3. A statement of the goals of the lesson, connected with a set of State or District Standards.
4. An outline of the material to be presented (indicating the classroom format)
5. A discussion of the homework in the book.
6. Each lesson must adhere to the Reformed-Based Lesson Plan guide found at the end of this syllabus.

**Micro Teaching Reflection.** One week after the presentation, turn in a 1-page reflection on your teaching. Other class members are encouraged to ask 'student questions'. Suggested topics for the first round are located below. The second round will be assigned in detail later in the semester.

**Micro Teach Lesson Notebook (MLN).** One of your greatest assets in understanding students' mathematical thinking is understanding and deepening your own mathematical thinking. Therefore, part of this course is about doing mathematics, generating mathematical conversations, and reflecting on your own mathematical knowledge. We will work on many mathematical problems during the semester. **So, please acquire and keep a 3-ring binder of the problems that we do (in class and for homework). You can expect problems to be assigned weekly, but I will collect your notebook THREE times during the term.** When I collect your notebook I will:

- evaluate your work for completeness (specified problems working on thoroughly – showing all work)
- read and assess about 5 mathematical problems in detail

### MLN Rubric

	Weak	Average to Good	Strong
Thoroughness (all problem completed thoroughly – all work shown)	1	2-3	4-5
Organization (Can I find all targeted problems easily?)	0	1	2
Explanation & Analysis of targeted problems	1-2	3-4	5-6
Mathematical Correctness of targeted problems	1-2	3-4	5-6
Substantiveness of exploration of targeted problems	1-2	3-4	5-6

### **Micro Teaching Rubric**

	Target	Acceptable	Unacceptable
Lesson Plan	All components of a reformed based lesson are included.	One of the criteria is not met to standard.	Two or more of the criteria are not met to

			standard.
Content	Content is accurate and well explained to students.	Content lacks a minor concept.	Content is incorrect.
Presentation Questioning	Guiding questions are asked throughout the activity. Students are encouraged to think for themselves.	Several guiding questions are asked. Students are encouraged to think for themselves.	A few guiding questions are asked. Students are told if they are right or wrong.
Student Participation	Students are actively involved, not passive learners, in the activity.	Students are somewhat involved in the activity.	Students are passive learners in the activity.
Reflection	Reflection includes thoughts on the outcome of the lesson: what students learned, what teacher learned, what needs to be done to improve the lesson.	One of the criteria is not met.	Two or more of the criteria are not met to standard.

## **6. JRME Article Reflection**

*Journal for Research in Mathematics Education (JRME).* Write a critical reflection on an academic journal article from JRME. The article should be recent (published within the last 2 years). In your reflection, give a summary of the main point(s) of the article including, but not limited to: the purpose of the study, research questions, significance of the study, implications for policy and practice, the methodology used, the methods for data collection, research findings, and implications for future research. If you choose to give a thumbnail sketch of the review of related literature, this should be very brief. Your reflection should be 4-5 double-spaced pages.

## **7. Field Requirements**

*PLEASE NOTE: Field experiences included in this course support candidates in addressing unit, state, and national standards. Candidates are required to enter both the location and number of field experience hours completed to meet the requirements of this course into Live Text (the e-portfolio system). This requirement must be completed to earn any credit aligned with field experience assignment. A minimum of 20 hours of field experience work is required. Field experiences included in this course support candidates to engage in the following professional roles/responsibilities in the conceptual framework of the college:*

- *Design and deliver instruction (assessing to plan instruction, lesson planning, teaching)*
- *Manage time, tasks, and environments (classroom organization, scheduling, positive behavior support)*
- *Advocate for children, services, and supports (identifying needs, direct advocacy, supporting others in advocacy efforts)*
- *Use inquiry to inform practice (applying information from professional literature, peers, internet resources to instruction)*
- *Collaborate to support group practice (working with others – team teaching, collaboration with family members and/or related service personnel)*
- *Improve classroom and system practice (adopting positive practices to improve teaching, classroom or school operation)*

Candidates are required to enter both the location and number of field experience hours completed to meet the requirements of this course into an e-portfolio. This requirement must be completed to earn any credit aligned with field experience assignments. Candidates will also be required to document completion of a required number of field experience hours at various points in the program of study in an Excel Spreadsheet or LIVETEXT. Thus, it is critical that candidates record all field experience information.

## **8. Assessment Lessons**

You will create lessons to assess your children's understanding of mathematical concepts three different ways: (1) Interviews, (2) observations, and (3) performance assessment. Each of these assessment assignments will be used to guide your daily lesson planning and each should be done through an activity-not just paper and pencil. You will administer these in the order that makes the most sense for your students. This is considered an advocacy project because you will use the assessments to make plans for furthering the students' progress.

The assessment lessons should provide information about students' conceptual understanding of selected mathematics topics. (Assessments should NOT focus on procedures or recall.) Each assessment lesson should follow the general outline for a lesson plan. Each revised lesson must be clipped with its original, reflections, evaluation and student work.

You will then conduct the assessment with the students. You should collect students' work, "grade" it, and write an evaluation, which includes:

- A statement on what you intended to measure
- A summary of how each student performed **on the math content.**
- A summary of each student's disposition **for learning the math content.**
- A summary of what you learned.
- A statement on your instructional plans based on the assessment.
- Students' work with score for each student's work and rubric. Report student's score as a percentage correct. You may choose NOT to share this score with students.

### **A. Interview Assessment Lesson**

Write a lesson for conducting an interview in order to determine strengths and weaknesses related to the chosen mathematical topic. Do the interview and be sure to focus on the targeted mathematics. Include paper and pencil calculations. Record your students' responses and complete the directions above.

### **B. Performance Assessment Lesson**

Create a task for students to complete and write and teach a lesson that includes a rubric to score the students' performances. Complete the directions above. A minimum of 4 children is required.

### **C. Observation Assessment Lesson**

Choose one particular mathematics topic, one behavioral characteristic, and one way to observe students. Write and teach a lesson with an observation rubric and complete the directions above. A minimum of 4 children is required.

## **9. Final Journal Assignment**

This journal will tie together all your experiences and growth up to the end of the class. **It should not** be a cut and paste of sections in the original journal. Rethink and rewrite your mathematical teaching philosophy, note connections you have made, the educational experiences you've had in this course, out of class enhancement activities, field experiences. Write about your strengths and weaknesses. What personal and professional qualities have enhanced your learning throughout the semester? What personal and professional qualities have limited your learning throughout the semester? What did you bring to the community of learners who have chosen this course? Were your expectations of that community of learners realized? How will the experiences gained from this course prepare you for teaching? Rate your level of math anxiety on a scale of zero to 10 and compare it to the initial score. Explain why you chose that score. Since no course can uncover all that you will need to become a great teacher, what topics or methodologies discussed in the course do you need to pursue further?

## **10. The Portfolio Assessment: Artifact Instructions**

As you proceed through your teacher education program at UNO, you will be collecting work samples to demonstrate your developing knowledge, skills, and dispositions as a teacher. The standards from the Association of Childhood Education International (ACEI) and the evidence sets developed by our teacher education program in correlation with the Louisiana Components of Effective Teaching (LCET) will be used to evaluate your performance. The directions and rubric for this assessment are attached to this syllabus. For more information on these standards, go to: [www.acei.org](http://www.acei.org).

### **Context**

For this Mathematics Portfolio Assessment, you should select at least 10 artifacts from your portfolio or math courses and reflect on what each artifact represents about your development as a mathematics teacher. Please review the standards below and choose artifacts of your learning that provide evidence of as many of these standards as possible. In your written reflection, describe each artifact that you selected, which standards it exemplifies, and why you think each particular artifact demonstrates evidence of the selected standards. The first five elements are best met with artifacts from your mathematics courses or math methods homework. Artifacts that demonstrate your impact on elementary student learning will likely have been developed as lessons for the field components of your mathematics methods courses. Remember that most artifacts will demonstrate multiple standards. Do not choose reviews of articles or lessons, or manipulative kit activities.

### **Purpose**

The purpose of this assessment is to demonstrate your developing knowledge, skills, and dispositions as a teacher. The elements of Standard 2.3: Mathematics from the Association of Childhood Education International (ACEI) will be used to evaluate your performance. A paraphrased description of these elements is listed below, and the accompanying scoring rubric describes how you will be rated on each of these standards.

Please begin with artifacts from this course or mathematics courses to complete the chart below. Use bold face-type to highlight all of the elements found in each. Complete the artifact correlation chart below and submit it as the first page of your assessment:

ELEMENT	ARTIFACT #	T, A, U
Element 1: Candidates know and understand number systems & number sense	1, 4 (e.g.)	
Element 2: Candidates know and understand algebra		
Element 3: Candidates know and understand geometry		
Element 4: Candidates know and understand measurement		
Element 5: Candidates know and understand probability and statistics		
Element 6: Candidates use major concepts, procedures, and reasoning processes to foster K-6 student learning		

Include and complete a one-sentence description of each artifact:

Artifact 1 is a homework assignment on operation of fractions.

Artifact 4 is a test from Math 1021, etc.

Follow this example:

**ELEMENT 1:** "For Element one, I have chosen Artifacts 1, 4 .6.

Artifact 1 addresses this element because in this assignment I did this ..." etc.

**"Artifact #1 also addresses the UNO Evidence set for planning because..."** etc.

See the EDCI packet for specific samples.

### **Portfolio Assessment Instructions**

For consistency, each person should purchase a set of 10-tabbed dividers. Within each section, sequence the papers as described below. Those items NOT chosen for inclusion in the portfolio must

be placed at the end of the respective section, not at the end of the binder. Thus, all graded work is organized in the binder. Present your portfolio in a three-ring binder with a cover page that includes your name and the course number. Please do not use plastic holders to encase your work. No work in pencil. Use white paper only. Revise the work selected for the portfolio. You will present aspects of your portfolio to the class during the last class.

### **11. Curriculum Unit Project for Graduate Students**

The culminating project of the course is for each student to develop and write a curriculum unit on a chosen topic. The curriculum unit will unify several lesson plans into a coherent learning experience; the way in which you weave lessons together has a significant impact on how students understand the mathematical concepts being taught. The unit should be planned for 12–15 days and be suitable for a group of students in a chosen educational setting. Further details on the unit will be given later in the course. The hard copy of the unit is due by 5:00 p.m. on Wednesday, May 4.

**Unit Plan.** The student will develop an outline for presentation of a unit which would include one of the prepared lesson plans (for example a chapter) with proposed assessment. Revisions to the outline will be collected as needed.

### *Suggestions for Additional Reading*

Each month, NCTM publishes two excellent journals for secondary teachers: *Mathematics Teacher* and *Mathematics Teaching in the Middle School*. NCTM members receive one of these journals with membership and also get access to numerous online resources. Students are urged to join NCTM and make reading a professional journal one habit of effective teaching.

**Graduate Students** will pick one of these readings and meet with the professor to discuss his/her newly gained information. While reading, **analyze** and **outline** the important parts for discussion. **Synthesize** your findings in such a way as to relate them to your current or teaching environment in middle or secondary mathematics. **Evaluate** the following: Are there some ideas that are fully implementable in your current or future classroom? Are there some ideas that look good in theory but may produce issues when implemented in your urban-setting classroom. The **graduate students** of this course will meet together with the professor to discuss your readings and findings.

- Artzt, A. F. & Newman, C. M. (1997). How to use cooperative learning in the mathematics class. Reston, VA: NCTM.
- Berlinski, D. (1995). A tour of the calculus. New York: Random House.
- Campbell, P.F. & Silver, E. A. (2000). Teaching and learning mathematics in poor communities: Report of a task force. Reston, VA: NCTM.
- Chappell, M. F., Choppin, J. & Salls, J. (Eds.), (2004). Empowering the beginning teacher of mathematics: High school. Reston, VA: NCTM.
- Dossey, J. A., McCrone, S., Giordano, F. & Weir, M. D. (2002). Mathematics methods and modeling for today's mathematics classroom: A contemporary approach to teaching grades 7-12. Pacific Grove, CA: Brooks/Cole.
- Johnson, D. R. (1982). Every minute counts: Making your math class work. Palo Alto: Dale Seymour Publications.
- Johnson, D. R. (1986). Making minutes count even more. Palo Alto: Dale Seymour Publications.
- Johnson, D. R. (1994). Motivation counts: Teaching techniques that work. Palo Alto: Dale Seymour Publications.
- Leinwand, S. (2000). Sensible mathematics: A guide for school leaders. Portsmouth, NH: Heinemann.
- Malloy, C.E., & Brader-Araje, L. (Eds.), (1999). Challenges in the mathematics education of African American children: Proceedings of the Benjamin Banneker Association Leadership Conference. Reston, VA: NCTM.

- Orr, E. W. (1987). *Twice as less: Black English and the performance of black students in mathematics and science*. New York: Norton.
- Ortiz-Franco, L., Hernandez, N. G., & De La Cruz, Y. (Eds.), (1998). *Changing the faces of mathematics: perspectives on Latinos*. Reston, VA: NCTM.
- Paulos, J. A. (1988). *Innumeracy: Mathematical illiteracy and its consequences*. New York: Hill & Wang.
- Peterson, I. (1988). *The mathematical tourist: Snapshots of modern mathematics*. New York: W. H. Freeman.
- Polya, G. (1945). *How to solve it*. Princeton, NJ: Princeton University Press.
- Posamentier, A. S. (2003). *Math wonders to inspire teachers and students*. Alexandria, VA: ASCD.
- Sobel, M. A., & Maletsky, E. M. (1998). *Teaching mathematics: A sourcebook of aids, Activities and strategies*. Third Edition, Allyn & Bacon.
- Steen, L. A. (Ed.). (1990). *On the shoulders of giants*. Washington, DC: National Academy Press.
- Steen, L. A. (Ed.). (1997). *Why numbers count: Quantitative literacy for tomorrow's America*. New York: The College Board.
- Stevenson, H. W. & Stigler, J. W. (1992). *The learning gap*. New York: Summit Books.
- Stewart, I. (2006). *Letters to a young mathematician*. New York: Basic Books.
- Stigler, J. W. & Heibert, J. (1999). *The teaching gap*. New York: The Free Press.
- Strutchens, M., Johnson, M. L., & Tate, W. F. (Eds.), (2000). *Changing the faces of mathematics: Perspectives on African Americans*. Reston, VA: NCTM.
- Thornton, C. A. & Bley, N. S. (Eds.). (1994) *Windows of opportunity: Mathematics for students with special needs*. Reston, VA: NCTM.
- Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners*. ASCD.
- Trentacosta, J. (Ed.), (1997). *Multicultural and gender equity in the mathematics classroom: The gift of diversity (1997 Yearbook)*. Reston, VA: NCTM.
- Other texts approved by the professor.

## *Suggested Websites*

- National Council of Teachers of Mathematics: [www.nctm.org](http://www.nctm.org)
- Louisiana Association of Teachers of Mathematics: <http://www.lamath.org/>
- Greater New Orleans Teachers of Mathematics: <http://www.gnotm.org/>
- Eisenhower National Clearinghouse: [www.goENC.com](http://www.goENC.com)
- Texas Instruments: <http://education.ti.com>
- The Math Forum: <http://mathforum.org/>
- National Library of Virtual Manipulatives: <http://nlvm.usu.edu/en/nav/vlibrary.html>
- Association for Supervision & Curriculum Development: [www.ascd.org](http://www.ascd.org)
- The Consortium for Mathematics & Its Applications: [www.comap.com/index.html](http://www.comap.com/index.html)
- Phi Delta Kappa International: [www.pdkintl.org/](http://www.pdkintl.org/)
- Math is More (a website about mathematics education): <http://www.mathismore.net/>
- Mathematicians' Pictures: <http://www.mathematicianspictures.com/>
- Website of women in mathematics: <http://www.agnesscott.edu/Lriddle/women/women.htm>
- Mathematicians of the African Diaspora: <http://www.math.buffalo.edu/mad/00.INDEXmad.html>
- The Mathematics Curriculum Center (information about state standards nationwide): <http://www.mathcurriculumcenter.org/>
- Mu Alpha Theta: <http://www.mualphatheta.org/>
- Mu Alpha Theta – Louisiana: <http://www.lamao.org/>

## **SOME RESOURCES FOR LESSON PLANNING:**

- Illuminations at NCTM (a website of activities for K-12 mathematics education): [illuminations.nctm.org](http://illuminations.nctm.org)
- Middle School Mathematics curricula:
- Connected Mathematics Project: <http://connectedmath.msu.edu/>

Mathematics in Context: <http://www.showmecenter.missouri.edu/showme/mic.shtml>

Teacher Professional Development and Resources by Annenberg:

<http://www.learner.org/resources/browse.html?discipline=5>

## Course Outline / Calendar

*T = Teaching Mathematics Text; G = Germain-McCarthy Text*

<b>Week 1</b>	<b>August 24</b>	
Introductions, syllabus, review of course expectations, procedures, etc.		
<b>Week 2</b>	<b>August 31</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. Initial Journal Assignment</li> <li>2. T: Chapter 1; G: Chapter 1 &amp; 2</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  _____
<b>Monday, September 7 The University is CLOSED for Labor Day</b>		
<b>Week 3</b>	<b>September 14</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. T: Chapter 2; G: Chapter 3</li> <li>2. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  _____
<b>Week 4</b>	<b>September 21</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. G: Chapter 4 &amp; 5</li> <li>2. JRME Article Reflection. See instructions above in rubric.</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  _____
<b>Week 5</b>	<b>September 28</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. Write a one-page letter of justification to parents on why you plan to use (or not to use) calculators in your classroom.</li> <li>2. Interview Assessment due today.</li> <li>3. T: Chapter 3; G: Chapter 6</li> <li>4. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  _____
<b>Week 6</b>	<b>October 5</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. Reflection #1.</li> <li>2. G: Chapter 7 &amp; 8</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  _____
<b>Week 7</b>	<b>October 12</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. T: Chapter 4</li> <li>2. Academic Article Prezi &amp; Handout</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  _____
<b>Monday, October 19 – Mid-Semester (Fall) Break – No Class</b>		



<b>Week 8</b>	<b>October 26</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. Performance Assessment.</li> <li>2. G: Chapter 9 &amp; 10</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  
<b>Week 9</b>	<b>November 2</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. Reflection #2.</li> <li>2. T: Chapter 5</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  
<b>Week 10</b>	<b>November 9</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. G: Chapter 11 &amp; 12</li> <li>2. Letter to parents justifying the use of calculators in your class</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  
<b>Week 11</b>	<b>November 16</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. T: Chapter 6</li> <li>2. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  
<b>Thanksgiving Holiday: No Class Monday, November 23</b>		
<b>Week 12</b>	<b>December 30</b>	
<b>Due today:</b> <ol style="list-style-type: none"> <li>1. Observation Assessment</li> <li>2. T: Chapter 7 ; G: Chapter 13</li> <li>3. Micro Teach Lesson</li> </ol>		<b>Micro Teach Lesson</b>  
<b>Week 13</b>	<b>December 7</b>	
Final Class Meeting <b>Due today:</b> <ol style="list-style-type: none"> <li>1. T: Chapter 8</li> <li>2. Micro Teach Lesson</li> <li>3. Portfolio Assessment</li> <li>4. Graduate Project</li> <li>5. Reflection #3</li> <li>6. Final Journal</li> </ol>		<b>Micro Teach Lesson</b>  

**Monday, September 7:** Labor Day – University is Closed

**Please check the University Registrar's Calendar for the following:**

- Last day to drop / resign without record
- Last day to drop with a "W"

## *Self-Evaluation*

Name \_\_\_\_\_

Cell Phone \_\_\_\_\_

Assignment/Assessment	Possible Points	Points Earned		
Attendance/Punctuality/Participation -3 per tardy; see syllabus for absences				
Initial Journal Due	8			
Reflections (1, 2, 3) Due	30			
Assessments (Interv, Perf, Obs) Due	45			
JRME Article Reflection Due	15			
Calculator Justification Letter Due	10			
Micro Teaching Lesson (MTL) #1 Due	50			
MTL #1 Reflection Due one week after MTL	10			
Micro Teaching Lesson (MTL) #2 Due	50			
MTL #2 Reflection Due one week after MTL	10			
Academic Article Prezi & Handout Posted Online Due	20			
Final Journal Due	10			
Graduate Project Due	100			
Total Scores	358			
Grades are converted to a percentage; letter grades are based on a 10-point grading scale.				

Complete this and turn it in with your final portfolio.

This should be placed in the front pocket with your hard-copy documentation of Field Experience Hours.

## *Elements of a Reform-Based Lesson*

1. Aim: In the form of a question (one sentence) to be answered by the end of the lesson.
2. Grade Level
3. Duration
4. Source
5. Objectives: Common Core State Standards addressed in this lesson. Make sure to include the Identifying Number and the Standard itself.
6. CCSS Practices
7. Assessment Tasks: How will you measure the objectives
8. Prerequisites: What do the students need to know before the lesson?
9. Learning Styles Addressed: What learning styles are addressed in this lesson?
10. Exceptionalities & Accommodations: Planning for students with special needs (can be fictitious). Make sure to include three exceptionalities with appropriate accommodations for each.
11. Materials & Tools Needed
12. Technology Connections, if any.
13. Classroom Management (e.g., individual work, pairs, group work)
14. Do Now: Warm Up / Review Problems (4), should connect to the challenge problem
15. Challenging Problem: One problem with multiple entry points, is engaging, and connects to the real world.
16. History of the Content (do not forget this)
17. Literary Connection (book, song, poem, &c., that ties into the content being taught)
18. Career Link (job title, description, average annual salary, &c.)
19. Vocabulary Wall (words that will be added)
20. Procedures: Include key questions for fostering higher-level thinking, guiding the lesson
21. Closure Activity.
22. Adaptation / Extension: What provisions for different rates for learning the ideas?
23. Evaluation & Rubric: For lessons serving as an evaluative assessment, create a rubric.
24. Homework: Include a review of current and past work, and a reflection.

**After the lesson... This is due one week after your micro teach lesson.**

25. Teacher Reflection: How did the lesson progress? Did students get the main points? What will you do next? What would you do next time when teaching this lesson?

**For the 3 assessment lessons, there is an evaluation section that must also be included.**

**The evaluation must be based on the rubric you provided.**

**The student must be given a percentage and letter grade.**

**There must also be a write-up of how the student did, including strengths, weaknesses,  
And what can be done to ensure mastery of the content (prescriptive).**

## *Rubric for Micro Teach Lesson*

### INSTRUCTION COMPETENCY 3B: USING QUESTIONING AND DISCUSSION TECHNIQUES

HIGHLY EFFECTIVE:	EFFECTIVE: PROFICIENT	EFFECTIVE: EMERGING	INEFFECTIVE
<p>In addition to the characteristics of “proficient,”</p> <ul style="list-style-type: none"> <li>Students initiate higher-order questions.</li> <li>Students extend the discussion, enriching it.</li> <li>Students invite comments from their classmates during a discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Teacher uses open-ended questions, inviting students to think and/or have multiple possible answers.</li> <li>The teacher makes effective use of wait time.</li> <li>The teacher builds on uses student responses to questions effectively.</li> <li>Discussions enable students to talk to one another, without ongoing mediation by the teacher.</li> <li>The teacher calls on most students, even those who don’t initially volunteer.</li> <li>Many students actively engage in the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Teacher frames some questions designed to promote student thinking, but only a few students are involved.</li> <li>The teacher invites students to respond directly to one another’s ideas, but few students respond.</li> <li>Teacher calls on many students, but only a small number actually participate in the discussion.</li> </ul>	<ul style="list-style-type: none"> <li>Questions are rapid-fire, and convergent, with a single correct answer.</li> <li>Questions do not invite student thinking.</li> <li>All discussion is between teacher and students; students are not invited to speak directly to one another.</li> <li>A few students dominate the discussion.</li> </ul>
EVIDENCE			
COMMENTS/SUGGESTIONS:			
			<div>PERFORMANCE LEVEL</div>

## INSTRUCTION COMPETENCY 3C: ENGAGING STUDENTS IN LEARNING

HIGHLY EFFECTIVE:	EFFECTIVE: PROFICIENT	EFFECTIVE: EMERGING	INEFFECTIVE
<p>In addition to the characteristics of “proficient,”</p> <ul style="list-style-type: none"><li>• Virtually all students are highly engaged in the lesson.</li><li>• Students take initiative to modify a learning task to make it more meaningful or relevant to their needs.</li><li>• Students suggest modifications to the grouping patterns used.</li><li>• Students have extensive choice in how they complete tasks.</li><li>• Students suggest modifications or additions to the materials being used.</li><li>• Students have an opportunity for reflection and closure on the lesson to consolidate their understanding.</li></ul>	<ul style="list-style-type: none"><li>• Most students are intellectually engaged in the lesson.</li><li>• Learning tasks have multiple correct responses or approaches and/or demand higher-order thinking.</li><li>• Students have some choice in how they complete learning tasks.</li><li>• There is a mix of different types of groupings, suitable to the lesson objectives.</li><li>• Materials and resources support the learning goals and require intellectual engagement, as appropriate.</li><li>• The pacing of the lesson provides students the time needed to be intellectually engaged.</li></ul>	<ul style="list-style-type: none"><li>• Some students are intellectually engaged in the lesson.</li><li>• Learning tasks are a mix of those requiring thinking and recall.</li><li>• Student engagement with the content is largely passive, learning primarily facts or procedures.</li><li>• Students have no choice in how they complete tasks.</li><li>• The teacher uses different instructional groupings; these are partially successful in achieving the lesson objectives.</li><li>• The materials and resources are partially aligned to the lesson objectives, only some of them demanding student thinking.</li><li>• The pacing of the lesson is uneven; suitable in parts, but rushed or dragging in others.</li></ul>	<ul style="list-style-type: none"><li>• Few students are intellectually engaged in the lesson.</li><li>• Learning tasks require only recall or have a single correct response or method.</li><li>• The materials used ask students only to perform rote tasks.</li><li>• Only one type of instructional group is used (whole group, small groups) when variety would better serve the instructional purpose.</li><li>• Instructional materials used are unsuitable to the lesson and/or the students.</li><li>• The lesson drags, or is rushed.</li></ul>
EVIDENCE			
COMMENTS/SUGGESTIONS:			PERFORMANCE LEVEL

## INSTRUCTION COMPETENCY 3D: USING ASSESSMENT IN INSTRUCTION

<b>HIGHLY EFFECTIVE:</b>	<b>EFFECTIVE: PROFICIENT</b>	<b>EFFECTIVE: EMERGING</b>	<b>INEFFECTIVE</b>
<p>In addition to the characteristics of “proficient,”</p> <ul style="list-style-type: none"> <li>• There is evidence that students have helped establish the evaluation criteria.</li> <li>• Teacher monitoring of student understanding is sophisticated and continuous: the teacher is constantly “taking the pulse” of the class.</li> <li>• Teacher makes frequent use of strategies to elicit information about individual student understanding.</li> <li>• Feedback to students is specific and timely, and is provided from many sources, including other students.</li> <li>• Students monitor their own understanding, either on their own initiative or as a result of tasks set by the teacher.</li> <li>• The teacher’s adjustments to the lesson are designed to assist individual students.</li> </ul>	<ul style="list-style-type: none"> <li>• Students indicate that they clearly understand the characteristics of high quality work.</li> <li>• The teacher elicits evidence of student understanding during the lesson. Students are invited to assess their own work and make improvements.</li> <li>• Feedback includes specific and timely guidance for at least groups of students.</li> <li>• The teacher attempts to engage students in self- or peer-assessment.</li> <li>• When necessary, the teacher makes adjustments to the lesson to enhance understanding by groups of students.</li> </ul>	<ul style="list-style-type: none"> <li>• There is little evidence that the students understand how their work will be evaluated.</li> <li>• Teacher monitors understanding through a single method, or without eliciting evidence of understanding from all students.</li> <li>• Teacher requests global indications of student understanding.</li> <li>• Feedback to students is not uniformly specific, not oriented towards future improvement of work.</li> <li>• The teacher makes only minor attempts to engage students in self- or peer-assessment.</li> <li>• The teacher’s attempts to adjust the lesson are partially successful.</li> </ul>	<ul style="list-style-type: none"> <li>• The teacher gives no indication of what high quality work looks like.</li> <li>• The teacher makes no effort to determine whether students understand the lesson.</li> <li>• Feedback is only global.</li> <li>• The teacher does not ask students to evaluate their own or classmates’ work.</li> </ul>
EVIDENCE			
<b>COMMENTS/SUGGESTIONS:</b>			<b>PERFORMANCE LEVEL</b>

## OBSERVATION RATING SUMMARY

COMPONENT	RATING
3B: USING QUESTIONING AND DISCUSSION TECHNIQUES	
3C: ENGAGING STUDENTS IN LEARNING	
3D: USING ASSESSMENT IN INSTRUCTION	
AVERAGE	

### OBSERVATION COMMENTS